



Central Valley Flood Protection Plan

DRAFT Summary Management Actions Workshop Flood Protection System Modification

July 22, 2010, 9:00 a.m. – 12:30 p.m.

Center for Collaborative Policy

815 S Street, First Floor, Sacramento, CA 95811

Participants: 48

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Italic = Attended via webinar

This summary only includes comments made during the workshop. Written comments submitted after the workshop will be available at <http://www.water.ca.gov/cvfmf>.

General Comments Applying to all Draft Initial Management Actions (MA)

- The Permitting MA workshop is focused on environmental permitting, but other types of permits (e.g. Central Valley Flood Protection Board and USACE permits) also should be taken into account.
- For planning purposes, it's important to look at all proposed MAs on a system-wide basis.
- On each evaluation form, it could be useful to add several bullets explaining how a particular MA relates to other MAs.
- Residual risk must be lowered by all flood management system modifications to be characterize them as flood protection measures.
- It is important to clarify whether a MA focuses on channel capacity or flood management system performance.
- MAs 16 and 17 should be revised to reflect the working MA 18 regarding redirected impacts.
- Before any discussion of 100 or 200 year levels of protection in the MAs, a clear definition of each term should be developed.
- The second to last bullet in the advantages section of MA 22 should be included in all of the MAs or taken out entirely.

Comments and Questions on Draft Initial Management Actions

MA-016: Improve conveyance and facilitate habitat restoration by reducing flow constrictions.

- Change the title of MA 16 to read "Improve Conveyance by Reducing Flow Restrictions"
- Additional clarification should be made to differentiate MA 16 and MA17. As written, it is not clear whether the intent is to remove certain blockages within the floodway or improve/increase overall system conveyance.
- Revise description to evaluate each type of in-stream, man-made hardpoints (e.g. bridges, marinas, etc.) separately. Note that not all possible types of hardpoints are currently mentioned in the current MA description.
- The description should differentiate between flow restrictions in channel and within bypasses. A new management action should be written for both types.

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- If habitat restoration is mentioned in the MA title, it should also be reflected in the goals.
- The term “hardpoints” may not be appropriate here: typically hardpoints refer to specific geomorphic structures as opposed to man-made structures. This discrepancy should be clarified throughout the MA evaluations.
- Revise the description to include the statement “constriction in the original design and vegetation.”
- Removing marinas in some areas would constitute a disadvantage for the recreation/boating community.
- Improving conveyance to increase space for restored ecosystem could offset any additional flood conveyance capacity. This is a disadvantage.
- Improving conveyance could allow additional space to increase shaded riverine and riparian habitat. While this is reflected in other MAs, it could be mentioned in MA 16 as well.
- Clarification could be made to differentiate increased conveyance vs. increased performance.
- This MA should be revised to include specific mention of a long-term economic mechanism to maintain the system as a whole. This mechanism should fund maintenance and improvements in perpetuity.
- Within the environmental evaluation, there should be a scalar discussion of increased flow velocities. While a 12 ft/sec increase in velocities would have a negative impact on the ecosystem in some areas, a 1 ft/sec increase would not.
- Recreation and navigation are social benefits of reduced flow constriction. Few in-channel blockages make boating for recreation and navigation safer.
- The relation of sediment transport to the removal of blockages should be reflected in the technical considerations.
- The technical considerations sections should be revised to note that downstream flood flow will not be affected unless water is either added to or removed from the system as a whole. Flood stage could be affected without adding/removing water.
- Under technical considerations, statements should be revised referring to “increased channel capacity.” Instead, it should read “restore channel capacity.”
- By reducing restrictions downstream, there is the potential to reduce flood stage upstream.

MA-017: Increase capacity of existing bypasses.

- The description should speak to increasing and restoring capacity of existing bypasses. This would increase flood risk reduction benefits and promote ecosystem function.
- The comment for MA 16 on “restriction” vs. “constriction” should be repeated here.
- Some differentiation should be made between rural and urban bypasses. Different rates of coverage exist between urban and rural levels of protection.
- On the MA-17 evaluation form, the boxes for “improve O&M” and “promote multi-benefit projects” should be checked.
- The MA should be revised to include mention of the fact that existing bypasses can’t handle their should be to restore them to design standards.
- The MA should distinguish between increasing bypass capacity by changing the bypass footprint and raising levees.
- The description should be revised to note that existing bypass overflow areas aren’t engineering, and simply overflow onto existing farmland.
- “Supporting recovery of listed species” should be listed as an advantage for this MA.
- Restricting land use within bypasses due to ecosystem restoration efforts is a disadvantage.
- The MA should not list “improvement of habitat” as an advantage. Historically, habitat in bypasses has reduced flood capacity. Habitat restoration is incompatible with flood flows in bypasses.
- An additional disadvantage is the potential high capital cost of the MA. This depends on the type/size of bypass though: the Sycamore Creek bypass near Chico could be modified at a relatively low cost.
- “Modifying weirs” under disadvantages should be listed as a separate MA.
- The advantage of increasing capacity should be specifically described.
- The system of weirs and bypasses is inherently interconnected. On the Sutter Bypass, weirs must be completed for the Bypass to function as designed.
- Additional thought should be given to whether or not this MA is sustainable in the long run.
- Lowered flood stage should be listed as an advantage.

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- The potential for salmonid rearing should be stressed. Additionally, vegetation on toe drains can reduce the effect of wave fetch on levees.
- Increasing water depths in bypasses (as an effect of raising levee height) could have a negative effect on aquatic species.
- Raising bypass levees (by adding material to crowns and slopes) would require removing vegetation and negatively affects habitat values.
- Reoperating weirs could negatively affect existing managed and natural wetlands.
- If the capacity of bypasses was increased, this accommodate a higher roughness coefficient, reducing the need to remove vegetation.
- Clarification should be made under environmental considerations that increasing capacity does not equate to restoring natural flows. Increasing capacity could also affect listed species.
- Reference to recreation in the methodology section of the evaluation should be carried forward to the social considerations section. Expanding bypasses could have significant recreational benefits for fishers/hunters.
- It's not clear whether changing bypasses would have a negative or positive effect on residual risk for recreationists.
- There was disagreement whether expanding the footprint of bypasses could reduce downstream flows without removing water from the system.
- Assuming climate change concerns are accurate, the capacity of all bypasses must be maintained or improved to accommodate higher flows.
- Changing bypass pulse flows can change sediment transport throughout the entire system.
- Some weirs can't carry design flows; others carry far more than design flows. Although technical modeling of these types of situations will not be included in the 2012 CVFPP, it will be included in future iterations.
- An additional benefit of increasing bypass footprints is greater groundwater recharge rates.

MA-018: Modify existing weirs or overflows to improve flood system performance.

- "Changing weir sill elevation" should be added to the MA description.
- As a result of this MA, in upper watershed areas more property must be acquired to accommodate overflow.
- The notion that a bypass should be develop for habitat may conflict with its flood control function.
- Significant easements exist within bypasses- these must be taken into account in the social considerations.
- Farming can provide benefits within bypasses from a flood standpoint.
- Maintenance issues should be taken into account in MA 18.
- Lowering weirs could increase threatened and endangered species reliance on bypasses and inhibit maintenance activities.

MA-019: Construct new bypasses to improve flood system performance.

- "Insufficient" should be removed from the description to avoid implication that a set standard exists for operating bypasses. This should be reworded to avoid the necessity of developing new standards.
- One disadvantage of MA 19 is a loss of local property tax due to long term land use changes. This could also increase development in the floodplain.
- One disadvantage of creating new bypasses is the need to relocate everyone within the proposed footprint. The political acceptability of this may be very low.
- An added benefit of MA 19 is increasing overall system capacity and reliability.
- From an economics standpoint, constructing new bypass would have a significant negative financial impact on adjacent lands.
- By keeping new bypass clear of vegetation and increasing overall flood system capacity, riparian vegetation within the channel could be maintained.
- Environmental justice issues should be considered with new bypass with respect to impacts on adjacent lands.
- The disproportionate impact to farmers due to bypass construction should be included in social considerations.

MA-020: Construct new levees to expand existing system capability.

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- The system e title should be adjusted to reflect the idea that building new levees further constricts the flood system. The overall carrying capacities of channels is reduced when new levees are constructed.
- The title should be changed from “expand” to “refine.”
- One disadvantage of this MA is the loss of habitat due to disconnection of channels from the floodplain.
- An additional disadvantage is the potential increase in state liability due to more development behind levees.
- In addition to high capital costs for new levee construction, there are also new long term O&M requirements.
- Building new levees could decrease the incidence of “flanking” when flood flows wrap around the end of existing levees.
- This MA could improve reoperation opportunities upstream.
- Depending on how levees are constructed, you could have either a positive or negative impact on the environment. If setback levees are constructed to provide room for habitat, the effect will be good. New rip-wrapped levees close to the channel will have a negative impact.
- Any time a new levee is planned, there are real estate and right of way issues. This must be considered under economic and social considerations.
- The intent of this MA must be clear. More specification may be needed on whether the goal of this MA is flood risk reduction alone, or it levees are intended to be designed to provide multiple benefits.
- Although the majority of new levees would be included in the State Plan of Flood Control (SPFC), new levees outside of the SPFC could be constructed under this MA where appropriate.
- The need to reach 200 year protection in urban/urbanizing areas and 100 year protection in rural areas under SB5 (Machado, 2007) could mean extending levees as much as 2 miles upstream in some places.
- If levees increase carrying capacity of channels, it could shift impacts.

MA-021: Raise levees to improve flood system performance.

- If flows are redirected as a result of this MA, it could redirect flood impacts upstream. This should be noted in the description.
- If this MA is intended to focus on 200 year protection for urban areas, 200 year protection should be reflected in the title.
- The title could be revised to say “Restore and Retain Flood System Performance.”
- In the problems section of the description, include clarifying language on level of protection and the definition of freeboard. As written, statements about these terms may not be correct.
- Geotechnical considerations should be included in the description and should specifically speak to strengthening levees to increase reliability. Levees are never raised without first doing a survey of reliability and stability.
- It is unclear whether this MA also includes construction of new floodwalls.
- A new disadvantage of this MA is the effect widening levees could have on the environment. If levees are widened on the water side, vegetation will be removed. However, if levees are only widened on the landside, vegetation could be retained on the water side.
- The legal issue of responsible parties for channel maintenance should be discussed in this MA.
- An additional disadvantage of this MA could be increased development within the floodplain as a result of stronger levees.
- From an economic standpoint, funding for O&M of improved flood systems must be funded in perpetuity and carried out on a regular basis.
- Floodwalls could create nuisance social problems like graffiti, especially in urban areas.
- If channel depth is increased as a result of increasing levee heights, velocities could increase and lead to greater scour issues and increased sheer stress.
- Floodwalls could increase increase maintenance costs, especially in seismically active areas like the Delta.

MA-022: Construct setback levees.

- The description implies that channels should always be contained between two levees close to the channel. This MA could be strengthened by adding “multi-stage” levees as one option. Multi-stage levees could provide varying degrees of flood protection.
- A setback levee could improve overall O&M costs.

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- Setback levees only work in areas where the river is not on high ground. In places like the Colusa basin, the river is on high ground. The description should note that any discussion of setback levees must be very site-specific.
- One potential disadvantage of setback levees is a loss of economic activity due to displacement of adjacent land uses.
- One advantage of setback levees is the potential for additional funding for construction due to the increase in environmental benefits. In particular, the USACE and a variety of non-governmental organizations (NGOs) may be able to contribute funding if projects serve a flood risk reduction and environmental purpose.
- One disadvantage of setback levees is the high capital costs of acquiring the necessary adjacent lands. Real estate acquisition is a non-federal cost. Additionally, setback levees may not be possible in some areas due to unwilling sellers or high density development behind existing levees.
- Setback levees have high environmental benefits because lands within the levees are not subject to the USACE Engineering Technical Letter (ETL) on levee vegetation.
- A possible advantage of setback is a reduction in O&M costs due to a lack of critical infrastructure behind levees.
- One disadvantage of creating habitat within set back levees is its possible effect on flood conveyance. As vegetation grows within levees, it slows flows and raises flood stage.
- From a social standpoint, historically the “best” land for development and farming alike is located near rivers. If all land near channels is taken up by setbacks, it could negatively impact local communities and existing land uses such as agriculture. Additionally, any existing structures within the setback would have to be relocated.
- If setback levees were constructed near existing weirs, they could have an impact on “flow splits” and redirect hydraulic impacts/sediment capacity.

MA-023: Construct ring levees.

- The MA description should differentiate between “polders” and ring levees vs. canal closure structures.
- In the methodology section of the description, distinction should be made between primary and secondary lines of defense.
- Ring levees should be built on a site specific basis. In areas like the town of Robbins or Walnut Grove (built in a depression) a ring levee might be appropriate. In other areas, it could redirect flows and impact other areas upstream.
- One significant disadvantage of ring levees is the high capital cost. It is unclear who would pay to protect small or legacy communities. This includes Delta island communities.
- Inherent in this MA is a tradeoff between flood protection for small communities and limiting any future development for those communities.
- Ring levees could isolate communities in a flood so that residents can’t be rescued or evacuate themselves.
- The description should be revised to speak about protecting “critical infrastructure” instead of infrastructure in general.
- Under economic considerations, a statement should exist about the need to balance levee construction costs vs. the value of the area it protects.
- Construction cost could be displaced if ring levees are characterized as part of the primary levee system.
- Instead of building ring levees around small communities, it may be possible to raise structures about projected flood levels.
- In addition to construction costs, O&M costs would be significant since ring levees block natural drainage and require pumping to stay dry.
- Ring levees could create redirected hydraulic impacts in the Delta and elsewhere- if ring levees are placed in channel, it could create backwater issues upstream. One suggestion to avoid this was to start any construction at the top of the system and work your way down to the Delta.
- It could be very difficult to build ring levees in areas with existing transportation corridors such as highways 4, 12 and 160 in the Delta.

MA-024: Improve structural performance of existing levees.

- In the first sentence of the description, remove the word “not.”

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- Promoting multi-benefit projects should be a goal of this MA.
- Include scour and rip-wrap placement in the problem statement.
- The description should include criteria for levee overtopping protection. This could also be characterized as a separate management action.
- A disadvantage of this MA is that any time there is a modification to a project levee, you must take into account the levee vegetation ETL.
- Placement of rip-wrap could negatively affect aquatic habitat.
- The costs of this MA are uncertain. If there are major improvements, it could include a substantial federal cost share. As noted above, this requires compliance with the levee vegetation ETL.
- In the environmental considerations section, the word “terrestrial” should be removed since this could affect both aquatic and terrestrial environments.
- DWR repairs undertaken since 2006 address a number of environmental impacts; to say that no opportunities for environmental improvement exist in the environmental considerations section is not entirely accurate.
- Multi-benefit projects constructed a result of this MA could provide recreational benefits.
- If changes are made to the water side slope of any levee, it could impact channel capacity and conveyance.
- The question of residual risk in the technical considerations section should be revised to note that there is a change in the level of protection due to modifications.

Suggestions for New Management Actions

- A new measure specific to the issue of overtopping protection
- Raise legacy communities above specified flood levels
- Inclusion of non-structural fixes to the flood management system including flowage easements and removing levees where appropriate
- Design multi-stage levees to provide tiered levels of protection corresponding with specific land use designations
- Construct drain/canal closure structures where appropriate
- Acquire widened levee corridors for adaptive management
- Address sedimentation issues in the existing system and future modified system- this is captured to some degree in MA 31, but may require additional information
- Develop management actions for each structure type in MA 16 (e.g. bridges, marinas, etc)
- Deauthorize federal levees where appropriate
- Construct levees to divide major land uses within and adjacent to the flood management system (i.e., separate urban areas from agricultural areas with appropriate levee designs)
- Build relief structures as needed